REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-21 are pending. Claims 1, 2, 4, 8-10, 12, and 18 have been rejected. Claims 3, 5-7, 11, 13-17, and 19-21 have been objected to.

Claims 1, 12, and 18 have been amended. No claims have been canceled. No claims have been added. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

Applicants reserve all rights with respect to the applicability of the Doctrine of Equivalents.

A certified copy of the Republic of Korea Application No. 2002-57223 shall be submitted by applicants in due course before payment of the Issue Fee for the referenced patent application.

Claims 1, 2, 4, 8-10, 12, and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. US2001/0004290 A1 to Lee et al. ("Lee") in view of U.S. Patent No. 5,379,309 to Logan, Jr. ("Logan").

Amended claim 1 reads as follows:

> An apparatus, comprising:
>
> an optical transmitter having a resonance wavelength characteristic that varies with a refractive index of the optical transmitter, wherein the optical transmitter receives a narrow band injected wavelength signal from an incoherent light source;
>
> a controller that substantially matches a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal <u>by changing the refractive index of the optical transmitter</u>; and
>
> <u>a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to control the refractive index of the optical transmitter, wherein the detector measures the parameter that determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched</u>.

(Amended claim 1)(emphasis added)

It is respectfully submitted that Lee does not teach or suggest a combination with Logan, and Logan does not teach or suggest a combination with Lee. It would be impermissible hindsight, based on applicants' own disclosure, to combine Lee and Logan.

Lee teaches a WDM source with an incoherent light injected Fabry-Perot laser diode.

The Examiner stated that Lee "fails to teach a controller to substantially match a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the refractive index of the optical transmitter; and a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to determine when the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched." (Office Action, p.3, 08/22/07).

Logan, in contrast, teaches a high frequency source having heterodyned laser oscillators injection-locked to a mode-locked laser. More specifically, Logan discloses:

> ...An optical fiber 38a connects the mode-locked laser output to an optical isolator and beam splitter 14, while optical fibers 38b, 38c connect the output of the isolator and splitter 14 to each of the CW lasers 16, 18. ... Each distributed feedback electrode 62 is connected in a control loop consisting of a photodetector 72 whose input is connected to a respective one of the output optical fibers 38d, 38e and whose output is connected to an analog-to-digital converter 74. A microprocessor 76 employs a conventional feedback control algorithm to generate <u>a distributed feedback current value from the converted detector output. A digital-to-analog converter 78 converts the distributed feedback current value to a distributed feedback current I_{DFB} applied to the electrode 62</u>.

(Logan, col. 5, line 56-col. 6, line 5)(emphasis added)

In particular, Logan discloses:

> A millimeter through submillimeter wave frequency synthesizer can be realized by the embodiment of FIG. 7 programming the microprocessor 76 to tune the laser #2 (the CW laser 18) to successive longitudinal modes of the mode-locked laser 12, while keeping laser #1 (the CW laser 16) at the same fixed frequency. In this way, frequencies from f.sub.osc through the top of the mode-locked laser band b (of FIG. 4) can be generated. This would correspond generally to a range of about 1 GHz to 1000 GHz. <u>The microprocessor 76 can change the CW frequency of the injection locked laser across a wide portion of the mode-locked laser band b of FIG. 4 by relatively small percentage changes in the control current $I._{DFB}$</u>.

(Logan, col. 6, lines 14-27)(emphasis added)

Thus, Logan discloses a microprocessor that changes the frequency of the injection locked laser across the mode-locked laser band by changing the control current (col. 6, lines 14-27). In contrast, amended claim 1 refers to a controller that substantially matches a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the refractive index of the optical transmitter.

Furthermore, even if the high-frequency source of Logan were incorporated into the WDM source of Lee, such a combination would still lack a controller that substantially matches a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the refractive index of the optical transmitter, as recited in amended claim 1.

Further, Logan discloses a detector output to generate a current value applied to the laser (col. 5, line 56-col. 6, line 5). In contrast, amended claim 1 refers to a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to control the refractive index of the optical transmitter, wherein the detector measures the parameter that determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched.

Furthermore, even if the high-frequency source of Logan were incorporated into the WDM source of Lee, such a combination would still lack a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to control the refractive index of the optical transmitter, wherein the detector measures the parameter that determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched, as recited in amended claim 1.

Therefore, applicants respectfully submit that amended claim 1 is not obvious under 35 U.S.C. § 103(a) over Lee in view of Logan.

Given that claims 2, 4, 8-10 depend from amended claim 1, and add additional limitations, applicants respectfully submit that claims 2, 4, 8-10 are not obvious under 35 U.S.C. § 103(a) over Lee in view of Logan.

Amended claim 12 reads as follows:

> A method, comprising:
> injecting a narrow band wavelength signal from a broadband light source into an optical transmitter having a resonance wavelength characteristic that varies with the refractive index of the optical transmitter;
> wavelength locking the resonant wavelength of the optical transmitter to the wavelength of the injected wavelength <u>by shifting a refractive index of the optical transmitter</u>; and <u>monitoring a parameter of the optical transmitter that provides a feedback signal to control the refractive index of the optical transmitter, wherein the parameter determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are wavelength locked</u>.

(Amended claim 12)(emphasis added)

It is respectfully submitted that Lee does not teach or suggest a combination with Logan, and Logan does not teach or suggest a combination with Lee. It would be impermissible hindsight, based on applicants' own disclosure, to combine Lee and Logan.

Lee teaches a WDM source with an incoherent light injected Fabry-Perot laser diode.

The Examiner stated that Lee "fails to teach a controller to substantially match a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the refractive index of the optical transmitter; and a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to determine when the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched." (Office Action, p. 3, 08/22/07).

More specifically, Lee discloses the following:

> When the F-P LD is biased above the threshold current, the output of the F-P LD is multi-mode. However, it becomes wavelength-selective after injection of the narrow-band incoherent light since a strong light is coupled to a specific mode of the F-P LD. <u>The output wavelength of F-P LD is locked to the injected</u>

> incoherent light and thus can be tuned by changing the pass-band of the tunable optical filter.

(Lee, paragraph [0053])(emphasis added)

Thus, Lee discloses locking the wavelength of the LD to the injected incoherent light. In contrast, amended claim 1 refers to wavelength locking the resonant wavelength of the optical transmitter to the wavelength of the injected wavelength by shifting a refractive index of the optical transmitter.

Logan, in contrast, teaches a high frequency source having heterodyned laser oscillators injection-locked to a mode-locked laser.

Furthermore, even if the high-frequency source of Logan were incorporated into the WDM source of Lee, such a combination would still lack wavelength locking the resonant wavelength of the optical transmitter to the wavelength of the injected wavelength by shifting a refractive index of the optical transmitter, as recited in amended claim 12.

Additionally, Logan teaches providing the detector output to generate a current value applied to the laser (col. 5, line 56-col. 6, line 5). In contrast, amended claim 12 refers to monitoring a parameter of the optical transmitter that provides a feedback signal to control the refractive index of the optical transmitter, wherein the parameter determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are wavelength locked.

Furthermore, even if the high-frequency source of Logan were incorporated into the WDM source of Lee, such a combination would still lack monitoring a parameter of the optical transmitter that provides a feedback signal to control the refractive index of the optical transmitter, wherein the parameter determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are wavelength locked, as recited in amended claim 12.

Given that amended claim 18 contains limitations that are similar to those discussed with respect to amended claim 12, applicants respectfully submit that amended claim 18 is not obvious under 35 U.S.C. § 103(a) over Lee in view of Logan.

Claims 3, 5-7, 11, 13-17, and 19-21 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants acknowledge with appreciation the Examiner's indication of allowance of claims 3, 5-7, 11, 13-17, and 19-21 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. At this time, however, applicants have not amended claims 3, 5-7, 11, 13-17, and 19-21. It is respectfully submitted, however, that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date: 01/22/2008 By: /Tatiana Rossin/
Tatiana Rossin
Reg. No. 56,833

1279 Oakmead Parkway
Sunnyvale, California 94085-4040
(408) 720-8300
Fax No. (408) 720-8383

Customer No. 008791